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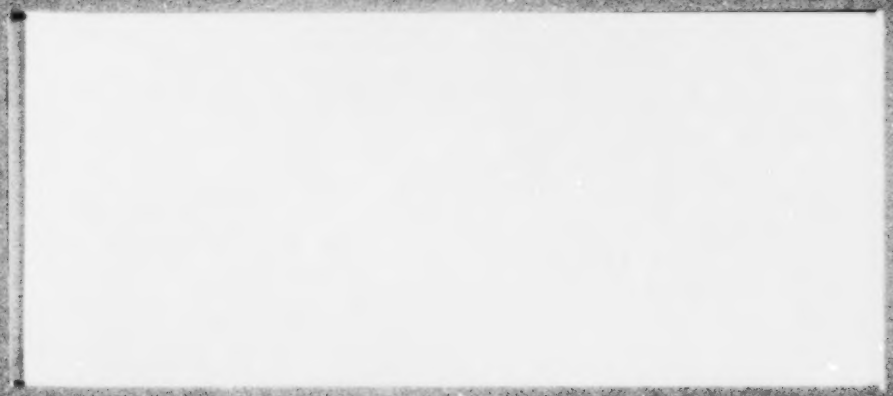

Agriculture and Food Development
Nova Scotia

A WORKING PAPER

AGRICULTURE IN THE VALLEY REGION OF NOVA SCOTIA: AN OVERVIEW

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For Agriculture Canada
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1.0 INTRODUCTION

Nova Scotia is comprised of six distinct sub-regions; Valley, South Shore, Halifax, Northumberland, Strait of Canso and Industrial Cape Breton (see map). Each sub-region has a unique set of resources (land, labour, capital) which have resulted in different economic activities. The agri-food industry is established to some degree in all regions.

This report is a review of the current state of the farming sector of the agri-food industry in one region of Nova Scotia. It is intended to provide background information which could facilitate the initial stages of strategy and program development related to the particular needs of the Region. An analysis at the Regional level will permit a better understanding of how any development initiatives will affect the Nova Scotia economy. The report:

a. describes the Regions' agricultural industry in terms of utilization of land, labour and capital, and delineates some aspects of agricultural production, processing and market demand;

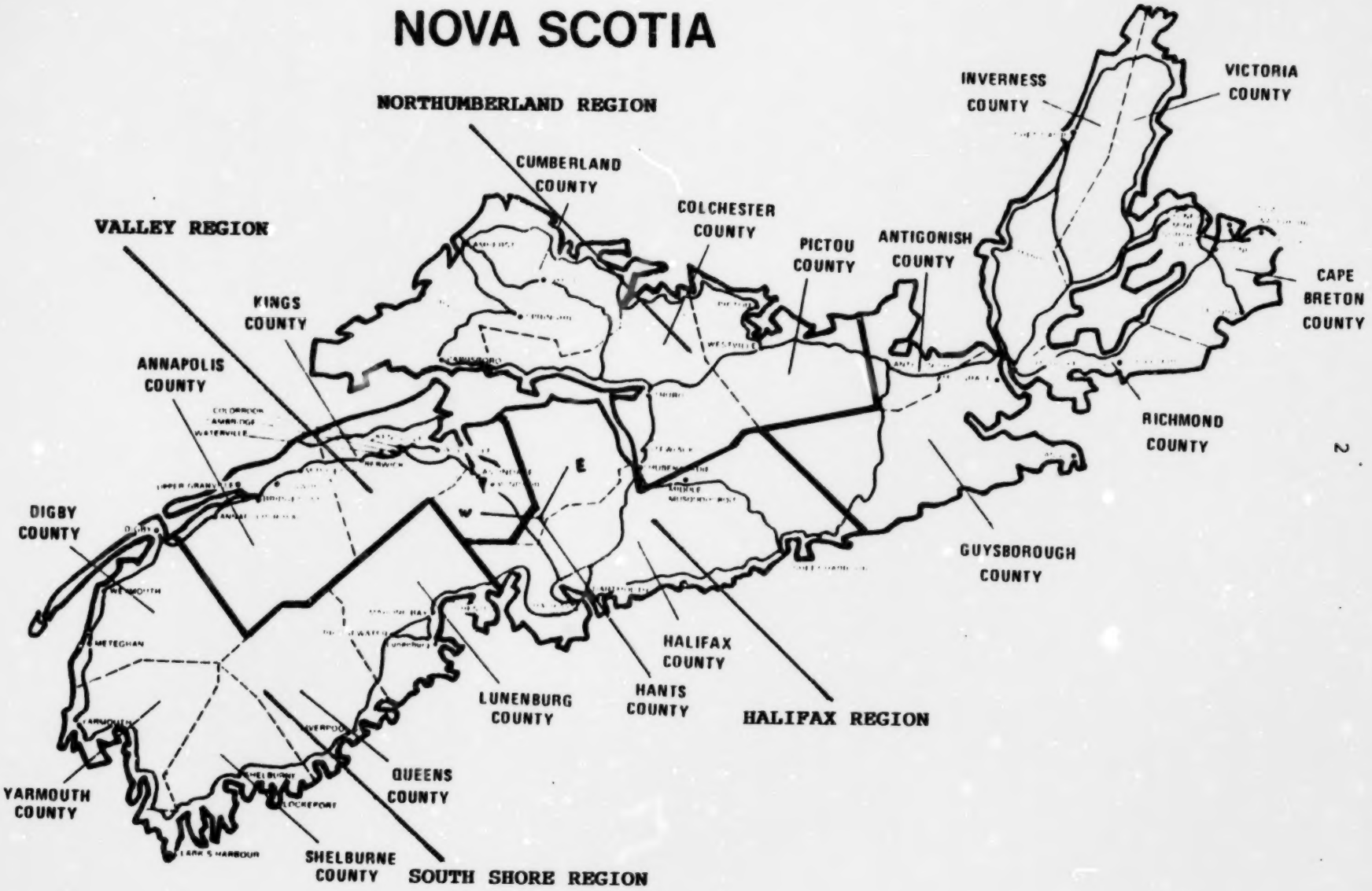
b. establishes opportunities for development of commodities produced in the Region;

c. denotes constraints inhibiting development of commodities produced in the Region; and

d. where appropriate emphasizes the uniqueness of agriculture in the Region, comparing it to the rest of Nova Scotia.

The first part of the report (Sections 2.0 and 3.0) is quantitative in nature, and is based on data from recent censuses of agriculture, as conducted by Statistics Canada, and on soil and climate data. Comparisons are drawn between 1981 farm

NOVA SCOTIA



Map Adapted From Agricultural Directory '85,
N.S. Department of Agriculture and Marketing

data for the Region, and 1981 farm data for the rest of the province. Trends from 1971 to 1981 are compared also for the Region and for the rest of Nova Scotia. Regional census data, by county, are sometimes referred to in the text, and detailed tables of this material may be found in an appendix (Section 5.3).

Census figures cited relate to "census farms" for which the definition has been changed in recent years as follows:

1971: "a farm, ranch, or other agricultural holding on one acre or more with sales of agricultural products, during the 12 month period prior to the census, of $50 or more;"

1981: "a farm, ranch, or other agricultural holding with sales of agricultural products during the past 12 months of $250 or more." Operations with anticipated sales of $250 or more in 1981 were also included.

The second part of the report is more qualitative in nature, and is an evaluation of opportunities and constraints relevant to agricultural development in the Region. This part of the report ties together the following information:

a. quantitative data from Sections 2.0 and 3.0.;

b. results of interviews with several people from the federal and provincial governments (persons contacted and their organizational affiliations are listed in Appendix 5.2);

c. background data from available reports and papers.

This report is one of four similar reports on the Regions of Nova Scotia. A bibliography of material relevant to agricultural development in the Regions may be found in Appendix 5.1.

2.0 THE REGIONS' AGRICULTURAL RESOURCE BASE

2.1 Soils

The Valley Region, like the rest of Nova Scotia, has no Class 1 agricultural lands. Substantial areas, however, are Class 2 land. Kings County has almost 20,000 hectares of this land and Annapolis County has over 700 hectares. Hants County has almost 20,000 hectares of Class 2 land, and the portion of that county included in the Valley Region (West Hants) add thousands of additional hectares of Class 2 land to the Regional total. Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices. The soils are deep, hold moisture well, and have a high productivity level.

The areas of Class 3 soils are much larger. Kings County has over 43,000 hectares and Annapolis more than 29,000 hectares. Hants County has very large areas of this soil class, 125,626 hectares, much more than any other county in Nova Scotia. A substantial proportion of these hectares is in West Hants. These soils are rated as fair to good for most classes of crops although certain soil types within the Class 3 grouping may be rated poor for potatoes and vegetables because of topography or stoniness. Their limitations with respect to wetness, moisture holding capacity, and fertility are more severe than Class 2 soils. As a result they require more exacting management and more extensive structural modification, such as drainage. Production costs can be higher than on Class 2 soils.

The areas of Class 4 soils are smaller than Class 3, but much larger than Class 2. Kings County has 43,205 hectares

and Annapolis County 17,755 hectares. Hants County has almost 43,000 hectares, and large amounts are in West Hants. These soils are, for the most part, rated as poor in their suitability for hay, grain, potatoes and vegetables. Most of these soils are rated as fair, or better, for pasture. Steep slopes contributing to erosion limit the cultivation of much Class 4 land.

An addition of areas of Class 2, 3, and 4 land gave a total for arable land in Nova Scotia, or any of its counties. Total arable land in the Valley Region was 229,381 hectares, 14.6 percent of the provinces total (Table 1). Kings County contained 46 percent of the Regions' arable land (Table A1). West Hants had 33 percent and Annapolis 21 percent.

The Valley Region's improved arable land made up about 23 percent of the Region's total arable land in 1971 and this proportion increased to 25 percent by 1981. In comparison the proportion of improved arable land to total arable land in the rest of the province was only 7.8 percent in 1971 and 9.0 percent in 1981.

Within the Region Kings county has a high proportion (32.9 percent) of its total arable land classed as improved land in 1981. The proportion was high in Annapolis (28.9 percent) and low in West Hants (11.3 percent).

The Valley Region contained one-third of the province's improved arable land even though it had only 15 percent of the province's total arable land. Sixty-one percent of the Region's improved land was in the County of Kings. Annapolis contained 25 percent and West Hants 15 percent.

Table 1. Valley Region and Rest of Nova Scotia: Arable Land.

	VALLEY REGION	REST OF NOVA SCOTIA	NOVA SCOTIA
Amount of:			
1971 Improved Arable Land (ha)	51,983	104,239	156,222
Residual Arable Land (ha)	177,398	1,239,362	1,416,760
Total Arable Land (ha)	229,381	1,343,601	1,572,982
Improved Land as Proportion of Total Arable Land (%)			
1971	22.7	7.8	9.9
1981	25.0	9.0	11.3
Proportion of Nova Scotia's:			
1971 Improved Arable Land (%)	33.3	66.7	100.0
Residual Arable Land (%)	12.5	87.5	100.0
Total Arable Land (%)	14.6	85.4	100.0

Source: Derived from Arbour, J. H., Residual Arable Land In The Maritime Provinces, Lands Directorate, Environment Canada, 1981.

Note: Valley Region figures were estimated - see Table A1.

2.2 Climate

Nova Scotia has more frequent storms during the year than any other part of Canada. The frequent passing of low pressure areas, associated with bad weather and the maritime location provide Nova Scotia with substantial precipitation. The climate is a modified continental type, characterized by a wide range of temperature. Areas near the coast have milder winters and cooler summers, and have a longer frost-free period. The longer season is offset by cooler temperatures and fewer heat units are available for plant growth.

Distance from the coast and land elevation determine local variations in climate. The province can be divided into eight climatic regions.

The Valley Region contains parts of three of the climatic regions:

1. The Annapolis Valley is a sheltered lowland with the warmest temperatures and the second lowest precipitation total in the province.
2. A narrow coastal strip along the Bay of Fundy has a long cool summer, mild winter, frequent fog and moderate precipitation.
3. The inland part of the Region is land that has been worn down almost to a plain by erosion, and this land slopes upward from the Atlantic coast. Rainfall is high and temperatures higher than in eastern Nova Scotia.

Annual precipitation ranges from about 1200 mm along the coast to 1400 mm inland. Total precipitation from May to September inclusive ranges from 425 to 475 mm. The Annapolis Valley area has 130 frost free days.

The eastern part of the Annapolis Valley has the highest corn heat units in the province,2,500 units. The rest of the valley has corn heat unit totals of over 2,200.

3.0 THE REGIONS AGRICULTURE: RECENT TRENDS AND CURRENT STATUS

3.1 Resource Utilization

The Valley Region reported 1,685 census farms in 1971 (Table 2). By 1981 this number had declined by 17 percent to 1,392 farms. In the rest of the province census farm numbers had fallen from 4,323 to 3,653, a decline of 15 percent over the same period.

Within the Valley Region the sharpest decline occurred in Annapolis County where farm numbers fell by 28 percent between 1971 and 1981. Farm numbers in both Kings and West Hants Counties declined by 13 percent over the same period (Appendix Table A-2).

The decline in Valley Region farm numbers was accompanied by an 11 percent decrease in the area of farm land during the 1971 to 1981 period. A 14 percent decline occurred in the rest of the province. The average farm size increased in the Valley Region from 82 hectares in 1971 to 88 hectares in 1981. In the rest of the province farm size increased only slightly, from 93 to 94 hectares.

When these farms were classified according to total land area shifting patterns of size distribution emerged. Small farms (less than 53 ha.) and farms over 162 hectares both declined at a slower rate than total farm numbers. In the rest of the province only the farm size group of 53 - 96 hectares declined at a significantly slower rate than total farm numbers. The net result was a small increase in the proportion of Valley farms with a small land area (less than 53 ha.) and a very small increase in the proportion of farms containing more than 96 hectares in the rest of Nova Scotia.

TABLE 2: Valley Region and rest of Nova Scotia: Farm numbers and land utilization

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Total Number of Farms	1,685	1,392	83	4,323	3,653	84
Total Area of Farms(000 ha)	137.8	122.2	89	400.4	343.8	86
No. of Farms by Land Area						
53 ha	758	734	97	1,779	1,515	85
53-96 ha	434	275	63	1,126	839	75
97-161 ha	289	196	68	736	688	93
162-226 ha	104	100	96	369	301	82
226 ha	100	87	87	313	310	99
No. of Farms by Improved Land Area						
4 ha	318	248	78	900	642	71
4-27 ha	798	551	69	2,189	1,681	76
28-52 ha	271	244	90	720	648	90
53-72 ha	114	119	104	246	242	98
73-96 ha	78	88	113	128	184	143
97-161 ha	74	92	124	105	182	173
161 ha	32	50	161	35	74	211
Use of Farmland - Hectares						
- Improved	52,001	57,273	110	104,338	120,709	116
- Crop	36,299	50,120	111	62,099	72,662	117
- Pasture	11,672	12,100	104	31,821	34,006	107
- Summer fallow	827	1,221	148	1,713	3,933	230
- Other	3,202	3,831	117	8,705	14,043	161
- Unimproved	85,771	64,961	76	296,085	228,056	77
- Woodland	62,636	52,029	83	237,201	188,813	80
- Other	23,135	12,931	56	58,884	34,283	58

SOURCE: Statistics Canada Census of Agriculture

The Valley Region continues to have relatively more small farms than the rest of the province.

While total land reported on Valley Region census farms declined 11 percent between 1971 and 1981, the area of improved land increased by 10 percent. Unimproved land, by comparison, declined 24 percent so that in 1981 47 percent of Valley Region farmland was classed as improved and 53 percent as unimproved.

When county figures were examined for the Valley Region, all three counties showed an increase in their improved land base. The increase was 11 percent in Kings County, 10 percent in West Hants and 8 percent in Annapolis. All counties had significant decreases in their unimproved land base.

In the rest of Nova Scotia the improved land area increased 16 percent from 1971 to 1981. The area of cropland increased by 17 percent. Improved pasture areas increased by 7 percent and summer fallow areas by 30 percent. In 1981 improved land made up 35 percent of total farmland in the rest of Nova Scotia compared to 47 percent in the Valley Region.

The 1971 and 1981 distribution of Valley Region farms according to their area of improved land was more heavily weighted towards the larger-scale farms than in the rest of Nova Scotia:

	Valley Region		Rest of Nova Scotia	
Area of Improved Land	1971	1981	1971	1981
Less than 28 hectares	66%	57%	72%	64%
28 - 72 hectares	23%	26%	22%	24%
More than 72 hectares	11%	17%	6%	12%

A comparison of the farm size distribution in 1981 with the distribution in 1971 showed that the relative shift from small to larger farms proceeded at the same rate in the Valley Region as in the rest of the province.

A number of characteristics of the farm labour force in the Valley Region and the rest of the province were identified (Table 3).

Recalling that farm numbers declined from 1971 to 1981 at about the same rate in the Valley Region (17%) as in the rest of the province (15%) it was interesting to note that the number of young farmers (under 35 years of age) increased 23 percent in the Valley Region as compared to 52% in the rest of the province. The number of farmers 55 and over declined 29% as compared to 31% in the rest of Nova Scotia. The resulting relative age distribution in the two parts of the province changed as follows:

Age of Farmers	Valley Region		Rest of Nova Scotia	
	1971	1981	1971	1981
Less than 35 years of age	10%	15%	10%	18%
35 - 54 years of age	47%	49%	46%	46%
55 years of age and older	43%	36%	44%	36%

Forty-two percent of Valley Region farm operators reported off-farm work during 1980 compared to 45 percent in 1970. These proportions were slightly less than those reported in the rest of the province (47 percent in 1970 and 49 percent in 1980). Valley Region farmers indicating off-farm work worked an average of 178 days off the farm, slightly less than the 190 days of farmers in the rest of Nova Scotia.

TABLE 3: Valley Region and rest of Nova Scotia: Farm labour characteristics

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Number of Farms by Age of Operation:						
Under 25 years	13	19	146	47	71	151
25 - 34 years	158	192	132	384	586	152
35 - 44 years	321	316	98	751	804	107
45 - 54 years	477	359	75	1,227	873	71
55 - 64 years	445	323	73	1,182	789	66
65 years and older	271	183	68	732	530	72
Total days of off-farm work by farm operator during previous year:	123,957	110,473	89	334,533	339,695	101
No. of farms reporting	722	620	86	2,019	1,790	88
Ave. per farm reporting	172	178	103	166	190	114
Total weeks paid labour	63,902	76,250	119	48,401	75,491	155
No. of farms reporting	815	737	90	1,468	1,445	98
Ave. per farm reporting	78	103	132	33	52	157

SOURCE: Statistics Canada Census of Agriculture

In the decade Valley Region farmers with off-farm employment increased their off-farm days by 6 days while the increase in the rest of the province was 24 days.

Fifty-three percent of Valley farms engaged paid labour during 1980 compared to 48 percent in 1970 In the rest of Nova Scotia forty percent of farms reported paid labour in 1980, up from 34 percent in 1970. Valley Region farms with paid labour had an average of 103 weeks in 1980 and 78 weeks in 1970 - an increase per farm of 32 percent during the decade. The average for farms with paid labour in the rest of the province was 52 weeks in 1980, and 33 weeks in 1970 - an increase of 58 percent in the ten years. In summary, a larger proportion of Valley Region farmers, than farmers in the rest of the province, engaged paid labour and they retained the labour twice as long.

Farm capital was examined in terms of the value of all capital, value of land and buildings, value of machinery and equipment, and the value of livestock and poultry (Table 4). Average capital value per farm in the Valley Region in 1981 was $241,590 compared to $153,646 in the rest of the province. The combined influence of inflation and farm expansion increased average farm capital in the Valley Region by 5.5 times and by 5.0 times in the rest of Nova Scotia. Average farm value of land and buildings increased 6.1 times in the Valley Region and 5.5 times in the rest of the province. Farm values in machinery and equipment increased 4.8 times in the Valley Region and 4.3 times elsewhere. Average livestock and poultry values, in contrast, increased slower in the Valley (3.8 times) than in the rest of the province (4.1 times).

TABLE 4: Valley Region and rest of Nova Scotia: Capital on farm

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Value of Capital on Farm						
- Total ($000)	73,801	336,294	456	132,284	561,269	424
- Average per farm ($)	43,799	241,590	552	30,600	153,646	502
Value of Land and Buildings						
- Total ($000)	48,238	244,453	507	83,995	388,671	463
- Average per farm ($)	28,628	175,613	613	19,430	106,398	548
Value of Machinery & Equipment						
- Total ($000)	13,670	54,026	395	26,198	96,262	367
- Average per farm ($)	8,113	38,812	478	6,060	26,351	435
Value of Livestock and Poultry						
- Total ($000)	11,924	37,815	317	22,039	76,336	346
- Average per farm ($)	7,076	27,166	384	5,098	20,897	410

SOURCE: Statistics Canada Census of Agriculture

The average per farm distribution of capital between the three major classes was as follows:

	Valley Region		Rest of Nova Scotia	
Type of Capital	1971	1981	1971	1981
Land and buildings	65%	73%	63%	69%
Machinery and equipment	19%	16%	20%	17%
Livestock and poultry	16%	11%	17%	14%

The Valley Region's utilization of capital shifted towards land and buildings in the decade and away from the other two classes, and this pattern was fairly similar to that experienced in the rest of Nova Scotia.

3.2 Farming Activities

Hay production in the Valley Region accounted for 37 percent of the Region's crop area in 1981 (Table 5). The area in hay increased by 5 percent from the 1971 Census. Increases occurred in rye, wheat, corn for grain, potatoes, and most of the vegetables.

Hay was also the most widely grown crop in the rest of Nova Scotia, accounting for 72 percent of the crop area in 1981. The hay area increased 19 percent from 1971 to 1981, and increases were recorded in oats for grain, silage corn, and fodder oats.

TABLE 5: Valley Region and rest of Nova Scotia: Field crop and vegetable areas

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Area of Major Field Crops (ha)						
- wheat	1,043	1,926	185	925	960	104
- oats for grain	2,275	1,421	62	4,927	5,311	108
- barley	1,690	1,691	100	1,833	1,794	98
- rye	642	1,478	230	103	676	656
- mixed grains	1,234	516	42	2,223	1,656	74
- corn for grain	885	1,657	187	317	189	60
- tame hay	17,667	18,579	105	44,119	52,526	119
- silage/fodder corn	1,736	1,136	65	1,678	1,990	119
- fodder oats	230	336	146	1,379	1,423	103
- potatoes	1,205	1,417	118	207	128	62
Area of Major Vegetable Crops (ha)						
- all vegetables	1,990	2,416	121	474	745	157
- beans	867	953	110	9	14	155
- beets	8	8	100	11	33	300
- cabbage	6	134	2,233	120	59	49
- carrots	106	170	160	61	344	563
- cauliflower	8	20	250	13	20	153
- cucumber	25	40	160	17	19	111
- green peas	676	658	97	3	8	266
- lettuce	12	13	108	36	19	52
- sweet corn	90	198	220	78	68	87
- tomatoes	33	28	85	16	1	6
- turnips	51	53	104	119	83	69
- other	41	121	925	42	39	92

SOURCE: Statistics Canada Census of Agriculture

Vegetable production increased in the Valley Region from 1,990 hectares in 1971 to 2,416 hectares in 1981, an increase of 21 percent. In 1981 the Valley had 76 percent of the province's vegetable crops. Sweet corn, cabbage and carrots were also prominent.

Vegetable production increased sharply (57 percent) from 1971 to 1981 in the rest of the province, to reach 745 hectares. Almost half of this vegetable area was in carrots, although significant areas were allocated to turnips, sweet corn, and cabbage.

The Valley Region's tree fruit area was 4,693 hectares in 1981, a decrease of four percent from 1971 (Table 5A). The rest of the province contained only 127 hectares in 1981, although this was a 66 percent increase from 1971.

Apples made up 92 percent of the Region's tree fruits area in 1981, the same proportion as in 1971. Pears took up 218 hectares in 1981 and lesser amounts of plums, cherries and peaches were produced. Apples made up 80 percent of the tree fruits area in the rest of the province in 1981. Very small amounts of the other tree fruits were produced outside of the Valley Region.

Within the Valley Region tree fruit production was concentrated in Kings County, the County having 85 percent of the trees in 1971 and 88 percent in 1981 (Table 5B). Kings County also had 85 percent of the apple trees in 1971 and 88 percent in 1981.

Table 5A: Valley Region and rest of Nova Scotia: Tree fruit and small fruit areas

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Area of Tree Fruits (ha)						
All Tree Fruits	4903	4693	96	78	127	163
Apples	4532	4325	95	61	101	166
Pears	253	218	86	7	11	157
Plums and Prunes	58	73	126	6	5	83
Cherries, sweet	14	18	129	2	5	250
Cherries, sour	11	17	155	2	3	150
Peaches	34	41	121	-	1	-
Apricots	1	1	100	-	1	-
Area of Small Fruits (ha)						
All Small Fruits	279	418	150	2403	5590	233
Strawberries	104	170	163	172	218	127
Other	175	248	142	2231	5372	241

Source: Statistics Canada Census of Agriculture

Table 5B: Tree Fruit and Small Fruit areas by County, in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Area of Tree Fruis (ha)						
All Tree Fruits	438	376	4155	4121	310	196
Apples	374	319	3871	3827	287	179
Pears	33	32	208	178	12	8
Plums and Prunes	12	8	40	57	6	8
Cherries, sweet	5	4	7	13	2	1
Cherries, sour	5	5	4	12	2	-
Peaches	8	8	25	33	1	-
Apricots	1	-	-	1	-	-
Area of Small Fruits (ha)						
All Small Fruits	154	51	120	204	5	163
Strawberries	28	43	76	117	-	10
Other	126	8	44	87	5	153

Source: Statistics Canada Census of Agriculture

The Valley Region had 418 hectares of small fruits in 1981, a 50 percent increase from 1971. However, 5,590 hectares were in the rest of the province, an increase of 133 percent over 1971. Strawberries were important in both areas, but most of the large area of small fruits in the rest of the province was in blueberry and cranberry production. In 1981 the province's small fruit area was larger than the tree fruit area.

Total cattle numbers in the Valley Region declined slightly from 1971 to 1981 while cattle numbers in the rest of Nova Scotia rose 11 percent (Table 6). Dairy cow numbers fell 20 percent in the Valley compared to a decline of 9 percent in the rest of the province. The number of replacement dairy heifers rose 46 percent in the Valley Region compared to a 68 percent increase in the rest of the province.

The Valley Region's beef cow herds numbered 7,672 animals in 1981, eleven percent above the 1971 numbers. The beef cow herd in the rest of Nova Scotia increased 12 percent in the same period. Replacement beef heifers decreased in both areas, probably about 25 percent in the Valley and 10 percent elsewhere in the province. In 1981 the ratio of beef replacements to cows was 1.0 to 2.8 in the Valley and 1.0 to 3.0 in the rest of Nova Scotia. In contrast the ratio in 1971 was 1.0 to 1.9 in the Valley and 1.0 to 2.5 in the rest of the province. These figures reflected some pessimism in the industry despite the increase in beef cow numbers in the 1970's.

TABLE 6: Valley Region and rest of Nova Scotia: Livestock and poultry on farm

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Total Cattle	42,518	41,908	99	88,402	98,301	111
- dairy cows	10,884	8,686	80	30,324	27,551	91
- replacement dairy heifers	3,051	4,462	146	7,884	13,211	167
- beef cows	6,895	7,672	111	14,669	16,400	111
- replacement beef heifers[1]	3,614	2,721	75	5,978	5,407	90
- cattle on feed	5,800	5,382	93	5,652	7,236	128
Total Pigs	36,281	82,695	228	43,484	56,649	130
- sows 6 mo. and over for breeding	3,552	7,807	220	4,625	6,478	140
Total Sheep	6,217	7,160	115	29,620	35,826	121
Total Chickens	1,763,304	X		1,292,509	X	
- layers more than 5 months	545,576	X		661,479	X	
- replacements layers less than 5 months	194,343	X		397,151	X	
Total Turkeys	46,353	X		24,015	X	
Total Geese	525	693	132	1,887	1,302	68
Total Ducks	366	788	215	1,460	2,830	193
Total Mink	1,371			128,988		
Total Rabbits	560	4,800	857	1,378	3,680	267

SOURCE: Statistics Canada Census of Agriculture

[1] includes some heifers for slaughter in 1971
X indicates suppressed data

Pig numbers increased dramatically in the Valley Region from 1971 to 1981, growing by 128 percent. In contrast pig numbers in the rest of Nova Scotia increased only by 30 percent. By 1981 the Valley had 59 percent of the province's pig population.

The number of chickens in Nova Scotia totalled 3.4 million in 1981, an increase of 12 percent from 1971. Data on chickens in the Valley Region were not available for 1981, but the Region had 58 percent of Nova Scotia's chickens in 1971.

The Valley Region increased its population of ducks and geese, and probably turkeys, from 1971 to 1981. By 1981 the Region had 35 percent of Nova Scotia's geese and 22 percent of the ducks.

The trend for utilization of tractors and selected machinery was established (Table 7). Tractor numbers in the Valley Region increased 16 percent from 1971 to 1981, the same rate as in the rest of the province. Despite increases in farm scale in both parts of the province the ratio of improved land to tractor numbers declined in both areas from 1971 to 1981. There were 23.5 hectares of improved land per tractor in the Valley in 1971 and 22.3 hectares in 1981. In the rest of the province there were 24.2 hectares of land per tractor in 1971 and 23.9 hectares in 1981.

The distribution of tractors by size in 1981 was as follows:

TABLE 7: Valley Region and rest of Nova Scotia: Farm mechanization

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Tractors [1]	2,216	2,568	116	4,319	5,045	116
- less than 50 hp	N/A	1,395		N/A	3,068	
- 50 - 99 hp	N/A	1,014		N/A	1,762	
- 100 or more hp	N/A	159		N/A	215	
- hectares improved land per tractor	23	22	96	24	24	100
- tractors per census farm	1.32	1.84	139	1.00	1.38	138
Combines	92	99	108	227	203	89
- hectares of grain per combine [2]	84	88	105	46	52	113
Swathers	33	86	261	48	242	504
Balers	623	695	112	1,694	1,909	112
- small balers (200 lb)	N/A	650		N/A	1,865	
- large balers (200 lb)	N/A	45		N/A	44	
- hectares of hay per baler	28	27	96	26	28	107
Forage Harvesters	87	144	166	203	273	134

SOURCE: Statistics Canada Census of Agriculture
1 excludes garden tractors
2 includes grain corn

Size of Tractor	Valley Region	Rest of Nova Scotia
Less than 50 hp	54%	61%
50 - 99 hp	40%	35%
100 or more hp	6%	4%

Census data for 1971 do not separate tractors into size classes as in 1981. An assumption can be made that average tractor size was increasing, therefore, the acres of improved land per horse-power was declining faster than the decline in hectares per tractor that was calculated above.

Tractor numbers per farm were significantly higher in the Valley Region than in the rest of the province, and by 1981 Valley farmers had 1.84 tractors per farm.

Combine numbers increased slightly in the Valley Region, but declined 11 percent in the rest of the province. Hectares of grain production per combine increased in both areas from 1971 to 1981, but the area per combine in 1981 was 69 percent higher in the Valley Region.

Numbers of swathers increased sharply in the Valley Region, but the increase was even more notable in the rest of Nova Scotia. More forage harvesters also were employed in 1981 than in 1971, the large increases probably reflecting the trend toward increased feeding of corn silage in the 1970's. Balers increased in number in both areas, at a rate of 12 percent. There was no significant change in the hectares of hay per baler. Large balers accounted for 6.5 percent of the Valley Region's baler total compared to 2.4 percent in the rest of the province.

3.3 Farm Output

Statistics Canada categorizes Census farms in terms of the major source(s) of farm revenue. This "product type" classification is determined by the commodity or group of commodities which accounted for 51 percent or more of total potential sales from the farm. Farms with sales of $2,500 or more were classified according to product type (Table 8). Mixed farms were classified according to whether livestock, field crops or some other enterprise predominated. The "miscellaneous specialty" grouping included greenhouses, nurseries, mushroom houses, sheep, horses, apiaries, fur farms and goats. The number of farms with sales of $2,500 or more increased by 15 percent in the Valley Region from 1971 to 1981, while the increase was 27 percent in the rest of Nova Scotia. The number of dairy farms with sales over $2,500, in the Region, declined by almost one third, and these farms made up only 18 percent of the farms in 1981 compared to 31 percent in 1971. In the rest of the province dairy farms made up 44 percent of all farms with sales over $2,500 in 1971, and this share declined to 30 percent in 1981.

Changes in the farm classification system made it impossible to derive accurate comparisons for cattle and hog farms during the 1971-1981 period. The 1971 figures for cattle farms included sheep and hog farms. Cattle farms, however, were the predominant farms in the Valley Region in 1981, making up 29 percent of the total - probably an increase from 1971. Cattle farms made up 30 percent of the farms in the rest of the province.

Fruit and vegetable farms in the Valley Region increased 27 percent from 1971 to 1981, and surpassed dairy farms in

TABLE 8: Valley region and rest of Nova Scotia: Farms with sales of $2,500 or more by product type

	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
Census farms with sales of $2,500 or more						
Total	847	974	115	1,721	2,195	127
Dairy	259	175	68	760	655	86
Cattle[1]	243	280	115	412	666	161
Hogs		93			103	
Poultry	59	51	86	110	75	68
Wheat	-	7		-	4	
Small Grains[2]	2	17	850	7	30	428
Field Crops[3]	63	40	63	13	34	261
Fruit and Vegetables	153	194	127	97	255	262
Misc Specialty	24	57	238	85	265	311
Mixed	76	60	79	91	108	118
Livestock Comb.	26	24	92	51	68	133
Field Crop Comb.	6	7	117	2	2	100
Other Comb.	44	29	66	38	38	100
Forestry	7			107		

SOURCE: Statistics Canada Census of Agriculture

[1]Includes cattle, hogs and sheep for 1971
[2]Excludes wheat farms
[3]Excludes small grains farms

number to become second only to cattle farms. Fruit and vegetable farms increased greatly in the rest of the province, and in 1981 were in fourth position, behind cattle, dairy, and miscellaneous specialty farms.

The distribution of Nova Scotia farms according to volume of annual sales was examined for 1971 and 1981 despite the problems of interpretation created by inflation. The number of farms with very small sales (less than $2,500) dropped 50 percent in the Valley Region compared to a slightly lower drop of 44 percent in the rest of the province (Table 9). In contrast there was an increase of substantial proportions in the number of Valley farms with large sales ($50,000 and more), and the increase was even more substantial in the rest of Nova Scotia. In the Valley Region these farms increased by a factor of 3.0 whereas elsewhere in the province the increase was by a factor of 5.5 over the ten year period.

TABLE 9: Valley Region and rest of Nova Scotia: Farms by sales class

No. of Farms by Sales Class	VALLEY REGION			REST OF NOVA SCOTIA		
	1971	1981	1981 as % of 1971	1971	1981	1981 as % of 1971
$250,000 or more		84			79	
100,000 - 249,000		129			223	
50,000 - 99,999	112[1]	132	308	101[1]	256	552
25,000 - 49,999	114	116	102	169	226	133
10,000 - 24,999	245	194	79	459	407	88
5,000 - 9,999	176	162	92	445	472	106
2,500 - 4,999	200	157	79	547	532	97
less than $2,500	836	418	50	2,584	1,458	56
Institutional Farms	2			18		

SOURCE: Statistics Canada Census of Agriculture

1 farms with sales of $50,000 or more in 1971

4.0 OPPORTUNITIES AND CONSTRAINTS RELEVANT TO AGRICULTURAL DEVELOPMENT IN THE REGION

4.1 Introduction

Regional development in agriculture is usually seen in terms of an opportunity to expand production of a commodity already produced in the Region, or to begin to produce a commodity not previously associated with the Region. Often, however, development may be seen as development of a new technology, or the application of existing technology (e.g. farm drainage), and these changes may affect the production of more than one commodity. The focus in this report will be on commodity opportunities, although technology aspects will be noted.

Opportunities are sometimes viewed in terms of dramatic breakthroughs. These breakthrough opportunities are few in an established agricultural system. Therefore, an opportunity sometimes should be seen as retaining a market, or living with a slowly expanding market, for a product that is important in the Region. Supply management products, for example, may be important to a Region in terms of a contribution to the Region and to individuals producing those products. Retention of the right to produce, despite no growth or slow growth, may be regarded as an important contribution and the retention of these products at as high a level as possible may be regarded as a development opportunity - as a decrease may lead to frenetic efforts to develop less promising products. Due note will be taken, therefore, of the place of established commodities in the Region.

Commodity information in this report was examined for the following commodity groups:

1. National supply management commodities - dairy, chickens, eggs, turkeys.
2. Non supply management livestock commodities - beef, hogs, sheep.
3. Field crops.
4. Fruits.
5. Vegetables.
6. Other commodities.

Constraints to agricultural development were examined in terms of the resource base of soil and climate, the resources of labour and capital that were applied to the resource base, and the marketing system.

Nova Scotia agriculture operates under an overriding constraint which requires stating lest an examination of regional agriculture lead to an emphasis on the overriding constraint, and overlook opportunities that will exist in the Regions. The overriding constraint is locational in nature, as Nova Scotia producers are a long way from large consumer markets, and transportation costs make it difficult for producers to be competitive in those markets. The locational constraint is reinforced by another constraint - a soil and climate constraint that limits the range of products that can be produced in volume. The result is a provincial agricultural economy that:

a. Can not supply (on a net basis) the food requirements of Nova Scotia's population.

b. Can export from the province substantial amounts of some agricultural products - exports that partially offset large imports of grain and tropical food products.

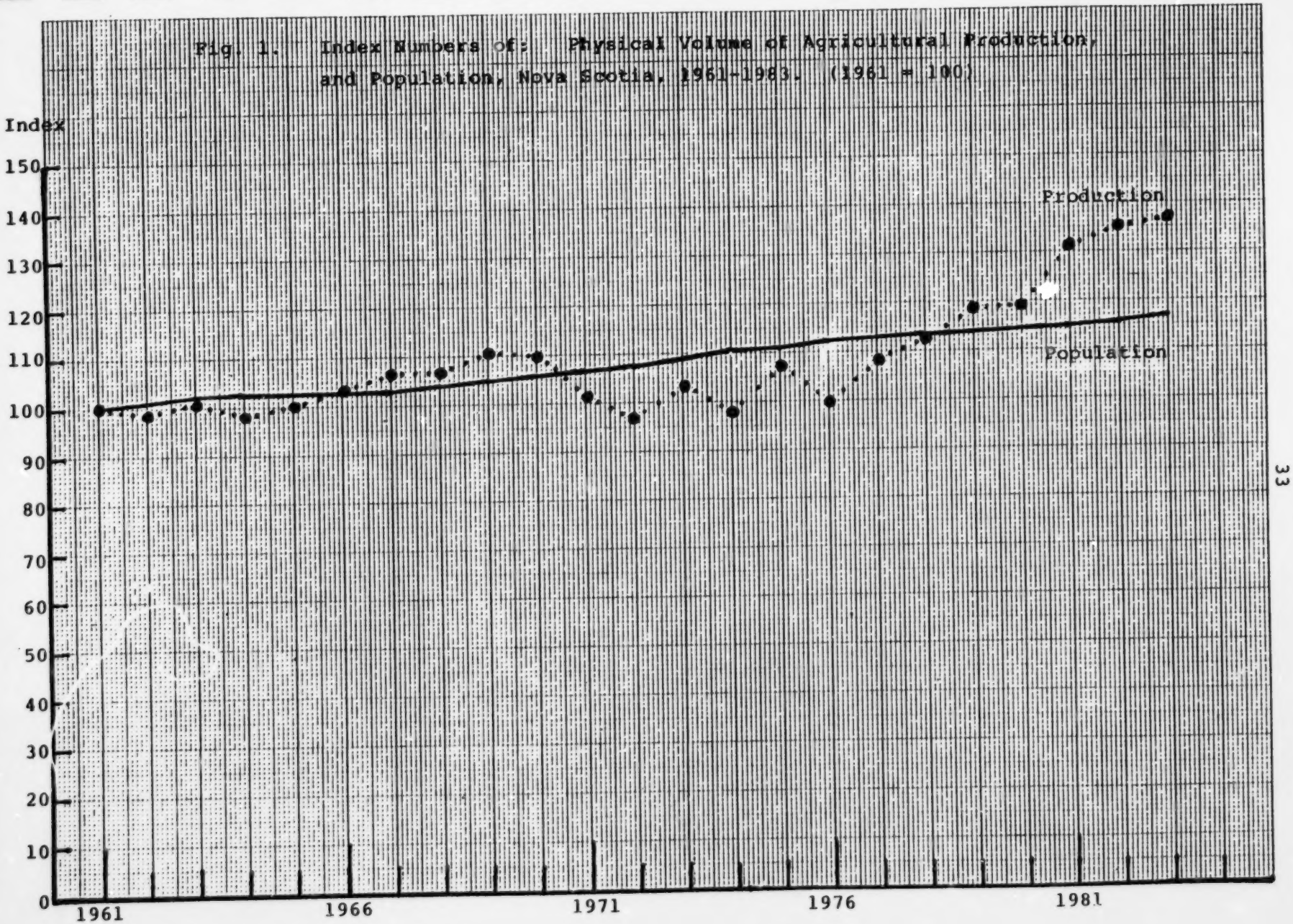
c. Relies on the domestic market of Nova Scotia for long-term growth.

The reliance on the provincial market can be illustrated by a tendency for the trend lines for population growth and agricultural production to run fairly close together (Fig.1). In some periods agricultural production tended to remain below the population line, at other times it was above. The agricultural production line trended upward more steeply than usual after 1976, probably as a result of a more profitable agriculture in the late 1970's, some government incentive, and a lower value Canadian dollar in recent years.

The Valley Region is the most productive Region of Nova Scotia for agricultural output. The Region's production, as measured by agricultural sales, was 46.3 percent of the province's production in 1980, marginally up from the 45.8 percent of 1970. Within the Region the output of Kings County increased from 33.4 percent of Nova Scotia's production in 1970 to 35.8 percent in 1980. Annapolis County decreased from 6.2 to 5.7 percent during the decade. A probable reduction also occurred in West Hants, the estimated decrease being from 6.2 percent of provincial sales in 1970 to 4.8 percent in 1980.

The decade of the 1970's was a period of growth in Nova Scotia agriculture, although most of the growth was achieved in the second half of the period. Variations

Fig. 1. Index Numbers of: Physical Volume of Agricultural Production, and Population, Nova Scotia, 1961-1983. (1961 = 100)



Source: Statistics Canada

in physical output from year to year made it difficult to measure increases, but the percentage increase in physical production was 8.4 from 1970 to 1980, and 17.7 from 1971 to 1981.

Physical output data were not available on a regional basis, but agricultural sales may be used as a rough measure of growth, when such sales for 1970 and 1980 were expressed in constant 1980 dollars.

Sales growth in Kings County was 48 percent in the 1970 to 1980 decade, compared to the provincial growth of thirty-eight percent for the same time period. Sales growth in Annapolis County was a respectable 29 percent, while the estimated growth in Hants was 7 percent. The Valley Region growth was 40% and the Region accounted for an estimated 47.7 percent of the growth in Nova Scotia's agricultural sales from 1970 to 1980.

4.2 National Supply Management Commodities

Commodities produced under the national supply management system generally provide producers with relatively good income compared to incomes available from producing many other products. Growth in the market tends to be slow, and subject to market trends and policy decisions arising from federal-provincial-producer agreements. The importance of the supply management products, however, in total agricultural output gives a real incentive to any Region to retain this production within the Region.

Dairy: Although dairy cow numbers in Nova Scotia and the Valley Region have decreased, increased milk production per cow has increased total milk output. Fluid sales have increased steadily to supply the Province's requirements and some out-of-Province fluid sales. Milk for the manufacturing market has increased at about the same rate in the last two decades and supplies a portion of the manufacturing milk market of the Province.

The Valley Region may have a smaller share of the milk market in recent years, if cow numbers can be used as a measure. Dairy cow numbers in the Region in 1971 represented 26.4 percent of cows in the Province and this decreased to 24.0 percent in 1981.

Production efficiency was high in the dairy industry, as output per cow increased at a 2.5 percent annual rate, well above the Canadian average.

Constraints on the industry's further growth include those arising from the supply management system whereby the Province entered a national system and obtained advantages of industry stability, and income growth for producers, but had to give up a possibility of increased market share. This constraint results in cost problems in the milk manufacturing area, as Nova Scotia's only cheese plant operated at only 45 percent of capacity when the Province was within the Market Supply Quota.

A milk marketing review committee identified other problems of communication and organization in the industry. These problems included a recognition that demand for milk may decline, inconsistencies in the way dairies deal with milk

shipments to Newfoundland, and differences in payments made to producers by the six dairies.

Hotels, restaurants and institutions purchased only 15 to 25 percent of their processed dairy products (cheese, yogurt, etc.) from Nova Scotia sources. Opportunities existed for increasing the market share but the constraint was the supply of milk awarded to Nova Scotia as its share of national quota.

Nova Scotia might have an opportunity to produce ultra high temperature products as the province has the only ultra high temperature plant in the Atlantic Provinces. The constraint is that negotiations are necessary with other provincial milk boards as ultra high temperature milk is in the same category as fresh milk.

Further constraints at the marketing level include:

a. Low per capita sales of cottage cheese and yogurt in markets in the Atlantic Provinces that are supplied from Nova Scotia.

b. Some feeling that many consumers may have a negative attitude to milk based on leak prone packages, high spoilage, inferior taste, and too many additives.

Poultry: Production of poultry meats is one of the most efficient segments of the provincial agriculture industry. Poultry meats,surplus to Nova Scotia's requirements,are exported to P.E.I., Newfoundland and other parts of North America. Production in the early 1980's was about 50 percent higher than in 1971.

Provincial egg producers, historically, supplied both local and export demands, but the production level in the early 1980's was about the same as in the early 1970's.

Data are inadequate to determine exactly the position of the Valley Region in the poultry industry. In 1971 the Region had 58 percent of the Province's chickens, and the Region's position in the whole industry has improved since that date. For example, 16 producers in Kings County have 49 percent of the total Nova Scotia egg quota. Fifty-four producers in Kings hold 87 percent of the chicken quota, and nine producers in the County hold 85 percent of the broiler turkey quota.

The centralization of much of the poultry industry, the factory type character of the enterprises, and the supply management aspect, allow the industry to serve Nova Scotia in an organized way. Excess production can be shipped to other provinces in the Atlantic area. As poultry production occurs usually near the region in which it is marketed, little opportunity exists for further export growth.

Constraints include a vulnerability to changes in production costs, especially energy and feed,and an inability to fully service the demands for poultry products by Nova Scotia consumers. Hotels, restaurants and institutions probably obtain 90 percent of their eggs within the province, 80 to 90 percent of their chicken and only 25 to 30 percent of their turkey requirements. The size of Nova Scotia's quota allotment for chickens and turkeys is an overriding constraint on meaningful enlargement of the market.

4.3 Non-Supply Management Livestock and Livestock Products

Beef: Nova Scotia imports large amounts of beef as the province produces only about 25 percent of its requirements. Nova Scotia's beef industry has made modest progress in recent years in the face of strong competition from other areas, areas that could market a high value product in Nova Scotia despite high transportation costs. Generally beef production is a part-time or secondary farm venture, but there has been an increase in the number of larger specialized operations.

The Valley Region had 32 percent of the Province's beef cows in 1971 and the same percent in 1981, and cow numbers increased from 21,564 to 24,072 in the decade. Over half of the Region's beef cows were in Kings County.

Many producers in Nova Scotia regard beef production as an opportunity, in spite of a long period of relatively low returns. Part-time farmers, and producers using beef as a secondary enterprise, use cattle to employ resources that would otherwise have been unused. In addition there is a large potential market as the Province produces only a small percent of its high quality beef requirements and only half of its boned beef needs. Hotels, restaurants and institutions purchase less than 25 percent of their volume from Nova Scotia sources. Feeder calves shipped from the province for finishing offer an opportunity for finishing within Nova Scotia. Nova Scotia has available suitable land and a favourable climate for pasture and hay production. Increased production in the province should not affect price levels.

Constraints hindering any rapid expansion of beef production in the Valley Region include;

a. A period of low prices has led to pessimism in the industry, and Valley Region producers have many alternatives compared to producers in most other areas.

b. Other areas, both national and international, have a competitive advantage in beef production in the form of cheaper costs and a structure for quality inspection and marketing.

c. Beef producers may not be able to rely on land prices being low enough to provide profitable operations - since the beef sector is most sensitive to land prices. Valley Region land prices generally are high in relation to other areas.

d. The dispersed and low-scale nature of the industry hinders extension and educational efforts to improve the industry.

e. The marketing structure is not oriented to readily accepting or handling Nova Scotia beef. Restaurants use large amounts of preportioned and frozen beef and the two preportioners purchase only federally inspected products and use a considerable quantity from outside the province. Present federal inspection facilities might be inadequate to handle significant additional quantities of Nova Scotia beef, although there are differences of opinion on that matter. Processing plants would have to meet federal inspection standards to compete with out-of-province products in retail stores.

f. Consumers no longer regard beef as highly as they did ten years ago in terms of nutrition and value for money - therefore significant gains in consumption are doubtful.

Pork: Nova Scotia's pig numbers increased greatly from 1971 to 1981, and a very large growth in the Valley Region increased its share of the provincial total from 45 to 59 percent. In 1981 Kings County had 80 percent of the Region's pig population. Growth was high enough that in 1982-83 over 50,000 hogs went to New Brunswick packers as local facilities could not handle them.

Relatively low prices have put pressure on the industry in recent years. Nova Scotia leads all other provinces in the quality of hogs processed. The province is probably over 60 percent self sufficient in meeting pork consumption requirements. An opportunity exists to raise this percentage as local pork is preferred in the provincial marketplace - this preference arising from a quality product, and a freshness of product because of the local production.

Constraints to expanded production include:

a. Large capital construction costs are involved in expanding existing units or establishing new production units.

b. The rapid changes in the hog industry brought about by technological advances requires an emphasis on technology transfer to keep industry people up-to-date.

c. Swine operations increasingly require the services of trained managers and swine farm herdsmen.

d. Losses still occur from bruising and stress as animals move through the marketing system.

e. Low price and profit levels in recent years have imposed the largest constraint on the opportunity for expansion. The price structure for the whole red meats industry induces great uncertainty at the farm level.

Sheep: Sheep numbers in the Valley Region represent about 17 percent of the provincial total, and these numbers are distributed fairly widely over the Region. Sheep numbers increased during the 1970's and stabilized in the early 1980's. Sheep production is underdeveloped and small in scale, with many small operations and few specialized operations, although larger units are increasing in number. No full-time farmers are totally dependent on sheep in Kings County, and this may be the case in the whole Valley Region.

In addition to the structural constraints, other constraints include:

a. Any expansion involves sizable expenditures for handling facilities and fencing.

b. Low prices of the 1980-83 period have precipitated cutbacks in Nova Scotia, Canada, and the United States.

c. The marketing system has disadvantages associated with slaughtering facilities and uneven movement to market.

d. Suppliers have difficulty dealing with large retail organizations because of the small and inconsistent supplies.

e. The availability of competitive supplies from other sources, including Oceania, imposes a severe restraint on expansion. Consumers accept imported frozen products.

4.4 Field Crops

The Valley Region contained 73 percent of the Province's wheat, rye and grain corn area in 1981, as compared to 65 percent in 1971. Hectares in these three crops in the Region increased by 97 percent in the decade, while the increase in the rest of the province was only 36 percent. The increase in the Region was especially high in Kings County.

The area of spring grains, oats, barley and mixed grains, decreased by 30 percent in the Region and only by 3 percent in the rest of Nova Scotia.

Organized marketing boards are influential in the marketing of the Valley's grains and the Provincial Grain Commission operates three handling and storage operations. Hard winter wheat goes to the milling trade, grain corn to local feed mills and a distillery, and rye goes to a distillery and export milling markets. As a result a grain industry is developing in Nova Scotia, and especially in the Valley Region, that produces grain for several markets.

Seventy-nine percent of farm cash income on Nova Scotia farms in 1981 came from livestock and livestock products. Very large amounts of grain and forage crops were necessary to generate that output. As a result of the Feed Freight Assistance Act (1941) Nova Scotia producers were able to obtain cheaper grain than previously, and local grain growing was discouraged in many areas. Imported grain increased and made up 79 percent of Nova Scotia's feed grain requirements by 1981. Local production of

cereal grains increased by one third after 1960, partly as a result of various incentive programs, but the increase was less than the increase in livestock.

Higher freight rates and uncertainty as to long-term plans for feed freight assistance have created an opportunity for the large scale development of a cereal grain industry that will reduce dependence on western grains. Livestock producers will be encouraged to grow more of their own grain requirements and cash sales should increase. The necessary resources of land, labour and capital could be utilized for replacement of imported grain on a large scale. Important elements of a successful replacement program would include early seeding, improved drainage, quality seed, adequate and timely fertilization, disease and pest control, careful harvesting, proper storage and marketing facilities. Temperature, heat units, and the frost free period in Nova Scotia are generally favourable for cereal production. Class 2 and Class 3 soils are suitable for cereal production and large areas of these classes have never been cleared, or have reverted back to forest. One key to profitable grain production in Nova Scotia is the ability to obtain consistently high yields, and several constraints impede the attainment of that objective.

Constraints to large scale replacement of western grains include:

a. Soil constraints include low natural fertility and low pH (acid soils), excessive stoniness, poor soil structure, excess water, adverse topography, and soil degradation. High rainfall leads to drainage, plant disease and trafficability problems.

b. Sophisticated management will be required to deal with the soil constraints, and this requires a high level of technology transfer.

c. On-farm facilities for drying, storing and milling will be required.

d. A lack of skilled farm labour is an important deterrent to increased production, as specialized labour is required for farm operations based on machinery and chemical utilization.

e. Often areas where cereals could be grown are small and isolated.

f. Land tenure patterns indicate that many land holdings are small or unavailable for grain production.

g. There is uncertainty as to government transportation policy.

Nova Scotia's tobacco production is in Kings County, sixteen growers producing about 280 hectares. Growers will try to retain their production as discussions continue on the possibility of quotas.

4.5 Fruits

The tree fruit sector of Nova Scotia's agriculture has tended to concentrate in the valley Region, and in Kings County within the Region. In 1981, the Valley Region had 97 percent of the total tree fruit area in Nova Scotia and 98 percent of the apples. Within the Region Kings County had 88 percent of all tree fruits and 88 percent of the

apples. The concentration of this industry in Kings County was reinforced by the strong presence of commercial and government services in the County.

The Annapolis Valley is one of the natural tree fruit production areas of the world. Suitable soil, some undeveloped areas, and good climate, indicate that apple production could be increased by one third in a few years. In addition there is room to expand pears, plums, peaches and cherries at a much greater rate.

Processing has always been an important part of the Nova Scotia apple industry, with between 53 and 65 percent of the crop being processed annually since 1971. From 3 to 7 percent has been exported, and the remaining 32 to 41 percent sold fresh in Canadian markets. A large part of sales for processing were used for apple juice, and Kings County had five firms engaged in apple processing in 1979. Unused capacity in processing could be utilized by growth in the industry. Increased production is necessary to hold or expand market share in areas such as Newfoundland, United Kingdom, or West Indies.

Pear production could be increased as local markets could absorb more pears, over a longer time period, and additional pears for processing would utilize more of the capacity of the processing plant. A modest expansion of stone fruit production could occur.

Constraints on expansion of tree fruits include;

a. Low winter temperatures limit production of peaches and apricots.

b. Improper drainage and hard pans may prevent portions of orchards being utilized for tree fruit production, although many acres of lower value crops could be converted to fruit production.

c. Lack of enough suitable storage, such as low oxygen controlled atmosphere storage, prevents Nova Scotia apple producers from providing apples to compete with imported produce in May, June and July.

d. A lack of volume of quality local apples also restricts Nova Scotia growers in competing with imported produce.

e. The present marketing system is difficult to co-ordinate and leads to excessive apple marketings in one period and not enough in another period, poor quality control at all levels, and lack of promotion. Growers have discussed central desk selling but rejected that system twice in grower votes.

f. Exports of apples have to be targetted on Europe since Ontario and Quebec are relatively self sufficient in apple production and their plantings continue. Refrigerated containers are necessary for quality.

g. The technology of the apple industry, at the production level, is changing quickly and it is difficult to have all these adopted quickly by all commercial growers.

h. A lack of scale in the apple industry inhibits development and exploitation of new products and new technology at all levels of the industry. Capital requirements will be substantial in any effort to increase volume in the industry.

i. The complex and sophisticated tree fruits industry requires enormous amounts of research relative to other agricultural enterprises.

j. Competing supply sources provide the hotels, restaurants and institutions with most of their fancy packed apples and fresh fruit salad. These supplies can only be displaced by Nova Scotia produce through a co-ordinated industry effort.

k. Continuous new plantings of apples in many countries has generated concern for several years that a general oversupply situation could occur. This has contributed to a feeling of uncertainty as to future prospects and acts as an inhibitor to change in the industry.

The Valley Region had 418 hectares of small fruits in 1981 compared to 5,590 hectares in the rest of the province. The small fruits sector was important to the Valley Region, but relatively small compared to its large tree fruits sector. In 1981 small fruits made up only 8 percent of the Region's total fruit production area. Strawberries accounted for 41 percent of the small fruits area in the Region. Kings County had 69 percent of the Region's strawberries.

Highbush blueberries continued to expand in the Region and by 1983 Kings County had 34 hectares out of a Regional total of 41 hectares. Most of the cranberry production of Nova Scotia was in Kings' County, as well as grapes. The County had 11 hectares of cranberries, 19 hectares of grapes and 6 hectares of raspberries.

The production of strawberries for the fresh market may have reached a saturation point and any further plantings will be geared mainly to population growth - unless processing offers a further opportunity. Opportunities exist for

further expansion of highbush blueberries, cranberries, raspberries, and grapes.

Nova Scotia raspberry production has expanded moderately since 1971 while cranberry and highbush blueberry production expanded at a very high rate. Cranberries and blueberries have good opportunities in Atlantic area markets and blueberries can be exported to New England. The climate is suitable for both berries, and generally the technology is available.

Constraints on the expansion of cranberries and highbush blueberries in the Valley Region include:

a. Capital establishment costs are high and there is a five year period between planting and harvest.

b. Production is inadequate and as a result certain expenses per unit are high. For example, partly filled trucks of blueberries shipped to U.S. markets incur large per unit transport costs. Increasing production could alleviate this characteristic of any new enterprise. The lack of late-ripening cultivars has limited the ability of many growers of blueberries to participate in the Boston market.

c. These crops require specialized care and equipment. For example in blueberries bird depredation, irrigation requirements, disease control, on-farm cooling, all impose constraints.

Constraints imposing limits on the increased production of strawberries in the Valley Region include:

a. There is a need to develop and introduce a mechanical harvester for strawberries so that expansion can occur in the processing part of the industry and make Nova Scotia competitive with imported products from Poland, Mexico and the United States. A combination of the solid bed culture and mechanical harvester offers some opportunity of overcoming the competitive advantages of other producing areas. Nova Scotia producers have not been interested in the prices paid for processing berries, but a reduction in harvesting costs could make this market more attractive.

b. Other production constraints for strawberries include:

- continuing problems in combatting disease in strawberry plantings,
- the need for a mechanical raised bed shaper,
- the high cost of irrigation equipment constrains the purchase of this equipment,
- the lack of new cultivars to extend the strawberry season.

c. There may be problems at the processing level, including a need for additional facilities, including re-designed or overhauled strawberry de-hullers. Also energy costs will be high in plants with expensive cold storage facilities.

Constraints generally applicable to any of the small fruits include:

a. Competing sources provide hotels, restaurants and institutions with most of their fresh fruit salad and these supplies can only be displaced by Nova Scotia produce through a co-ordinated effort.

b. Hotels, restaurants and institutions purchased only 15 to 30 percent of their in-season supplies of fresh fruit and vegetables from Nova Scotia sources, and this proportion dropped to less than 10 percent for out-of-season purchases. Processed purchases from Nova Scotia sources were higher, 60 to 70 percent of the total.

c. The present marketing system for small fruits is difficult to co-ordinate and opportunities are missed to provide customers with a continuous supply of a quality product.

4.6 Vegetables

The vegetable sector of Nova Scotia's agriculture is concentrated in the Valley Region, and in Kings County within the Region. In 1981 the Valley Region had 76 percent of the total vegetable area in Nova Scotia, compared to 81 percent in 1971. Within the Region Kings County had 95 percent of the vegetables in both census years. The concentration of this industry in Kings County was reinforced by the strong presence of commercial and government services in the County.

The vegetable area in the Region was close to 50 percent of the fruit area, but a larger range of commodities were produced. Some vegetables increased substantially during the decade, especially cabbage, carrots and sweet corn. Most of the others remained constant, or increased slowly because of low levels of processing and imports of fresh seasonal produce. Some crops, like lettuce were particularly subject to competition from imports.

In total the vegetable industry has not been able to expand in the early 1980's, although the range of commodities has increased.

A few vegetables are produced for fresh and processing markets and slightly more for storage. A larger number are fresh truck vegetables. There appear to be development opportunities in all three groups, although these are difficult to identify because of the large number of vegetables involved. Development opportunities have been identified for fresh vegetable sales to retail and wholesale operations in Nova Scotia if specified quantity, quality and price conditions can be met.

Constraints to increased production include:

a. At the production level major expenditures are required to obtain well drained land, and irrigation systems to protect against frost and to provide water in mid summer. Specialized machinery is needed to increase efficiency and reduce the requirements for seasonal labour.

b. Cooling facilities are necessary for some vegetables to retain quality, and not enough of these facilities are available.

c. Grading, washing and packaging is on an individual basis, making it difficult to obtain quality and volume.

d. Nova Scotia producers can not usually meet the requirements of the few large buyers for large volumes of quality produce over an extended time period.

e. The major constraint remains that imposed by competition from imported produce.

4.7 Other Commodities

The greenhouse industry in Nova Scotia produces cut flowers, potted plants, bedding plants, and greenhouse vegetables. Fairly similar amounts of space are devoted to each product. The area peaked in 1973 and declined as energy costs increased. The Valley Region probably has close to half of the greenhouse area. Constraints of high energy costs, competition with vegetable imports, and high capital costs for new technology restrict any opportunity for real expansion. About two-thirds of the greenhouse area has been converted to wood fuel for heating.

The nursery business expanded rapidly in the 1960's and 1970's and there is room for further expansion as this industry, in the consumer's mind, is associated with the quality of life. The Valley Region has an important share of this industry.

Historically the apiculture industry has been centred in the Valley Region as climate, bee pasture, and closeness to the orchard industry offered encouragement. Kings County beekeepers have 36 percent of the province's colonies. The industry expanded as both commercial and hobby producers increased in numbers. Honey production is insufficient to meet provincial demand, but some preference for the local product offers an opportunity for expansion. As orchards and small fruits expand in area the apiculture industry will also expand. Constraints include the lack of bee pasture, bear depredation, diseases, parasites, need for specialized equipment, and a lack of co-ordination in honey marketing.

4.8 Other Constraints

The Valley Region has been described in terms of commodity opportunities and constraints on the further expansion of various commodities. There are general constraints which apply to most commodities and which have not been consistently mentioned thus far.

These constraints include:

a. There may be a lack of research on varieties, production techniques, marketing structure, market opportunities, and use of the land, labour and capital resources.

b. There may be an inadequate system for technology transfer.

c. There may be a lack of service organizations, either business or government, to provide input services or marketing services.

Most of the Valley Region is relatively well supplied with services. The Federal and Provincial government services, particularly around Kentville, act as a stimulus to agricultural development. The Region appears to be well serviced by firms providing inputs to the farm production process. The answer is not as clear for marketing services as the scale of firm necessary for some functions (e.g. slaughtering and processing plants) will lead to a situation of inadequate service from the point of view of many individual producers.

4.9 Summary

The Valley Region is one of the three areas of Nova Scotia with favourable agricultural conditions. These include relatively good soil and climate, and the labour and capital resources to apply to the resource base. The Region is capable of efficiently producing most agricultural products. The agricultural growth rate of the Region is slightly higher than that of the rest of Nova Scotia, and the result is some centralization of more of agriculture in the Region.

Opportunities are available for expansion, as the arable land base can be further utilized for production of many commodities. Probably expansion will be distributed over many commodities and there will not be any one product, or group of products, that will be the focus of expansion. It will be a matter of reinforcing success, of encouraging further development in an area that has a record of relatively efficient production.

Constraints are present for all commodities, and at all stages of the production and marketing system. Some of the most noticeable constraints are at the marketing level, as there is difficulty matching many farm production and marketing units with the needs of large buying organizations.

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5.3 Regional Census Data By County

Table A1: Distribution and disposition of arable land, by County, in Valley Region of Nova Scotia

	Annapolis	Kings	West Hants
Amount of:			
1971 Improved Arable Land (ha)	12,782	31,518	7,683
Residual Arable Land (ha)	35,146	74,771	67,481
Total Arable Land (ha)	47,928	106,289	75,164
Improved Land as Proportion of Total Arable Land (%)			
1971	26.7	29.6	10.2
1981	28.9	32.9	11.3
Proportion of County's Arable Land Classed as:			
Class 2 (%)	1	19	NA
Class 3 (%)	62	41	NA
Class 4 (%)	37	40	NA
	100	100	
County's Proportion of Regions:			
1971 Improved Arable Land	24.6	60.6	14.8
Residual Arable Land	19.8	42.2	38.0
Total Arable Land	20.9	46.3	32.8

Source: Derived From Arbour, J. H., Residual Arable Land in The Maritime Provinces, Lands Directorate, Environment Canada, 1981.

Note: West Hants figures were estimated, using Arbour's data for Hants County. An assumption was made that West Hants contained 40 percent of the total arable land in Hants County.

TABLE A2: Farm numbers and land utilization by County in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Total No. of Farms	517	373	907	792	261	227
Total Area of Farms (000 ha)	44.3	34.4	70.8	66.8	22.7	21.0
No of Farms by Land Area						
53 ha	221	161	435	398	102	175
53-96 ha	127	84	236	153	71	38
97-161 ha	104	69	133	117	52	10
162-226 ha	29	31	53	67	22	2
226 ha	36	28	50	57	14	2
No. of Farms by Improved Land Area						
4 ha	105	72	168	146	45	30
4-27 ha	281	162	398	294	119	95
28-52 ha	64	57	148	137	59	50
53-72 ha	22	29	78	70	14	20
73-96 ha	21	19	48	51	9	18
97-161 ha	17	20	44	62	13	10
161 ha	7	14	23	32	1	4
Use of Farm Land - Hectares						
Improved	12,791	13,874	31,541	34,933	7,669	8,466
crop	7,685	8,636	23,480	26,130	5,134	5,354
pasture	3,880	3,685	5,832	5,925	1,960	2,490
summer fallow	101	242	633	893	93	86
other	1,124	1,310	1,596	1,985	482	536
Unimproved	31,501	20,535	39,210	31,913	15,060	12,513
woodland	23,664	17,102	27,157	24,113	11,815	10,814
other	7,837	3,432	12,053	7,800	3,245	1,699

SOURCE: Statistics Canada Census of Agriculture

TABLE A3: Farm labor characteristics by County, in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
No. of Farms by Age of Operator						
- under 25 years	5	5	7	10	1	4
- 25 - 34 years	43	54	87	106	28	32
- 35 - 44 years	88	79	188	183	45	54
- 45 - 54 years	161	93	250	214	66	52
- 55 - 64 years	143	96	228	181	74	46
- 65 years and over	77	46	147	98	47	39
Total Days of Off-Farm Work by Farm Operator During Previous Year	45,569	30,190	59,476	58,786	18,912	21,497
No. of farms reporting	253	202	364	312	105	106
Ave. per farm reporting	180	149	163	188	180	203
Total Weeks Paid Labor	7,290	8,179	47,235	57,574	9,377	10,497
No. of farms reporting	191	167	499	474	125	96
Ave. per farm reporting	38	49	95	121	75	109

SOURCE: Statistics Canada Census of Agriculture

TABLE AA: Capital on farms by County in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Value of Capital on Farms						
Total ($000)	16,356	74,887	46,389	219,296	11,056	42,111
Ave. per farm ($)	31,636	200,769	51,146	276,889	42,360	185,511
Value of Land and Building						
Total ($000)	10,522	54,863	30,277	159,651	7,409	29,939
Ave. per farm ($)	20,352	147,086	33,381	201,580	28,387	131,890
Value of Machinery & Equipment						
Total ($000)	2,962	11,141	8,876	36,451	1,832	6,434
Ave. per farm ($)	5,729	29,869	9,786	46,024	7,019	28,344
Value of Livestock and Poultry						
Total ($000)	2,871	8,883	7,238	23,194	1,815	5,738
Ave. per farm ($)	5,553	23,815	7,980	29,285	6,954	25,278

SOURCE: Statistics Canada Census of Agriculture

TABLE A5: Field crop and vegetable areas, by County, in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Area of Major Field Crops (ha)						
- wheat	218	342	711	1,427	114	157
- oats for grain	421	512	1,329	546	525	363
- barley	224	461	841	1,141	625	89
- rye	15	66	623	1,373	4	39
- mixed grains	159	129	912	287	163	100
- corn for grain	64	143	799	1,512	22	2
- tame hay	5,228	6,061	9,087	8,691	3,352	3,827
- silage/fodder corn	360	229	1,078	586	298	321
- fodder oats	106	32	110	192	14	112
- other fodder crops	43	20	100	180		39
- potatoes	123	77	1,080	1,336	2	4
Area of Major Vegetables Crops (ha)						
- all vegetables	84	77	1,888	2,308	18	31
- beans	2	20	865	933	--	--
- beets	3	1	5	7	--	--
- cabbage	2	5	59	129	--	--
- carrots	7	9	97	161	2	--
- cauliflower	2	--	6	19	--	--
- cucumber	8	1	17	39	--	--
- green peas	21	--	652	658	3	--
- lettuce	6	1	6	12	--	--
- sweet corn	18	16	72	158	--	24
- tomatoes	6	2	26	26	1	--
- turnips	4	4	40	49	7	--
- other	4	11	36	107	1	3

SOURCE: Statistics Canada Census of Agriculture

-- less than 1 hectare

TABLE A6: Livestock and poultry on farms, by County, in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Total Cattle	12,658	12,358	22,054	21,620	7,806	7,930
- dairy cows	3,405	2,915	5,160	4,287	2,319	1,484
- replacement dairy heifers [1]	936	1,516	1,444	2,203	671	743
- beef cows	1,719	1,902	3,773	4,006	1,403	1,764
- replacement beef heifers [1]	875	830	2,100	1,256	639	635
- cattle on feed	1,876	1,299	3,207	3,044	717	1,039
Total Pigs	5,086	10,856	26,303	65,999	4,892	5,840
- sows 6 mo. and over for breeding	819	1,204	2,226	5,816	507	787
Total Sheep	2,604	2,192	2,512	2,783	1,101	2,185
Total Chickens	48,302	8,204	1,604,763	2,328,129	110,239	N/A
layers more than 5 mo.	25,754	73,077	433,691	459,821	86,131	N/A
replacement layers less than 5 mo.	10,138	N/A	160,328	176,076	23,877	N/A
Total Turkeys	3,000	N/A	43,353	74,928	-	135
Total Geese	75	139	370	399	80	155
Total Ducks	55	149	211	351	100	288
Total Mink	921		-		450	
Total Rabbits	78	83	430	52		

SOURCE: Statistics Canada Census of Agriculture

[1] includes some heifers for slaughter in 1971

TABLE A7: Farm Mechanization by County in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Tractors [1]	518	533	1,369	1,678	329	357
less than 50 hp	N/A	315	N/A	868	N/A	212
50-99 hp	N/A	196	N/A	693	N/A	125
100 or more hp	N/A	22	N/A	117	N/A	20
hectares improved land per tractor	25	26	23	21	23	24
tractors per census farm	1.00	1.43	1.51	2.12	1.26	1.57
Combines	11	21	65	64	16	14
hectares of grain per combine [2]	100	79	80	98	91	54
Swathers	8	27	17	45	8	14
Balers	180	201	323	342	120	152
small bales (under 200 lb)	N/A	195	N/A	319	N/A	136
large bales (over 200 lb)	N/A	6	N/A	23	N/A	16
hectares of hay per baler	29	30	28	25	28	25
Forage harvesters	15	30	52	84	20	30

SOURCE: Statistics Canada Census of Agriculture

[1] excludes garden tractors
[2] includes grain corn

TABLE A8: Farms with sales of $2,500 or more, by County, in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
Census Farms with Sales of $2,500 or more						
- Total	194	228	519	593	134	153
- Dairy	72	64	97	75	90	36
- Cattle[1]	71	90	126	122	46	68
- Hogs		13		73	11	
- Poultry	5	2	47	46	7	3
- Wheat	-	2	-	3	-	2
- Small Grains [2]	-	2	-	13	2	2
- Field Crops [3]	6	1	57	37	-	2
- Fruit and Vegetables	18	29	123	156	12	9
- Misc. Specialty	6	19	10	21	8	17
- Mixed	14	6	54	47	8	7
- Livestock Combo.	9	2	11	18	6	4
- Field Crop Combo.	2	1	4	6	-	-
- Other Combo.	3	3.	39	23	2	3
- Forestry	2		5		-	

SOURCE: Statistics Canada Census of Agriculture

1 includes cattle, hogs and sheep for 1971
2 excludes wheat farms
3 excludes small grains farms

TABLE A9: Farms by sales class, by County, in Valley Region of Nova Scotia

	Annapolis		Kings		West Hants	
	1971	1981	1971	1981	1971	1981
No. of Farms by Sales Class						
$250,000 or more		6		73		5
100,000 - 249,999		30		86		13
50,000 - 99,999	14 [1]	28	87 [1]	88	11 [1]	16
25,000 - 49,999	20	22	80	80	14	14
10,000 - 24,999	50	44	156	110	39	40
5,000 - 9,999	45	47	98	80	33	35
2,500 - 4,999	65	51	98	76	37	30
than $2,500	322	145	387	199	127	74
Institutional farms	1		1			

SOURCE: Statistics Canada Census of Agriculture

[1] farms with sales of $50,000 or more in 1971